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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,064	12/21/2001	Satoshi Seo	12732-087001	8559

26171 7590 09/22/2003

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EXAMINER
THOMPSON, CAMIE S

ART UNIT	PAPER NUMBER
1774	

DATE MAILED: 09/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/026,064	SEO ET AL.	
	Examiner	Art Unit	
	Camie S Thompson	1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-128 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-128 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2-3,5-6 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Li, U.s. Patent Number 6,372,154.

Li discloses an organic electroluminescent element for use in an organic light-emitting device. The reference discloses in column 4, lines 36-68 optoelectronic thin film devices that may be light emitting devices such as a thin film transistor and an electrochemical luminescent display device. Figure 1 of the reference discloses the structure of the light-emitting device as having a substrate/anode/hole transporting layer/electron transporting layer/cathode structure. Li discloses that the hole transporting layer can have a combination of organic compounds such as aromatic amines, carbazoles, copper phthalocyanine and polythiophene derivates as per the instant claims (see column 2, lines 63-68). Additionally, the electron-transporting layer can have a combination of organic compounds such as aromatic oxadiazoles, triazoles and quinolines as per the instant claims (see column 2, lines 60-63). Column 6, lines 50-68 of the reference disclose the organic polymers used in the luminescent layer, which also functions as the electron-transporting layer, of the device. Also, Li discloses that in order to obtain highly efficient light-emitting devices, phosphor dopants can be added in order to promote luminescence from a triplet state (see column 12, lines 11-30).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 25-128 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li, U.S. Patent Number 6,372,154 in view of Baldo et al., U.S. Patent Number 6,097,147.

Li discloses an organic electroluminescent element for use in an organic light-emitting device. The reference discloses in column 4, lines 36-68 optoelectronic thin film devices that may be light emitting devices such as a thin film transistor and an electrochemical luminescent display device. Figure 1 of the reference discloses the structure of the light-emitting device as having a substrate/anode/hole transporting layer/electron transporting layer/cathode structure. Li discloses that the hole transporting layer can have a combination of organic compounds such as aromatic amines, carbazoles, copper phthalocyanine and polythiophene derivates as per the instant claims (see column 2, lines 63-68). Additionally, the electron-transporting layer can have a combination of organic compounds such as aromatic oxadiazoles, triazoles and quinolines as per the instant claims (see column 2, lines 60-63). The combination of organic compounds in the electron and hole transporting layers provides for a mixed region within the device. Li also discloses that a dopant in an amount of 0.01-15% is used in the hole-transporting layer for excited energy state transfer (see column 4, line 29 and column 13, lines 1-13). The reference also discloses in column 13, lines 11-24 that the thickness of the hole-transporting layer and the

luminescent layer range 0.5 to 500 nm and 10 nm to 300 nm respectively. Figure 2 of the reference discloses that a luminescent layer can be directly printed on the anode substrate (also see column 13, lines 14-16). Column 6, lines 50-68 of the reference disclose the organic polymers used in the luminescent layer, which also functions as the electron-transporting layer of the device. Also, Li discloses that in order to obtain highly efficient light-emitting devices, phosphor dopants can be added in order to promote luminescence from a triplet state (see column 12, lines 11-30). Li does not disclose the use of a blocking layer in the light-emitting device. Baldo teaches a light-emitting device comprising a substrate, an anode, a hole transporting layer, an emission layer, a blocking layer, an electron-transporting layer and cathode (see Figure 2). In column 4, lines 14-24 of the Baldo reference, it is disclosed that the materials used in the device include any suitable materials which fulfill the purpose(s) of the respective layers. The blocking layer is used to prevent the diffusion of excitons from the emission layer into the electron-transporting layer. Therefore, it would have been obvious to one of ordinary skill in the art to use a blocking layer that blocks the diffusion of excitons from the emission layer to electron transporting layer in order to enhance the efficiency of the device (see Baldo reference: column 2, lines 23-26).

Neither reference discloses the total mass of the hole-transporting layer. The weight of the electron and hole transporting layers affects the increased energy injected into the luminescent layer. Therefore, it would have been obvious to have a total mass of the electron and hole transporting layers be within the range of 10% to 90% in order to obtain color emission change which is caused by increased energy injected into the luminescent region (see Li: column 12, lines 19-23).

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Camie S. Thompson whose telephone number is (703) 305-4488. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H. Kelly, can be reached at (703) 308-0449. The fax phone numbers for the Group are (703) 872-9310 {before finals} and (703) 872-9311 {after finals}.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.

CYNTHIA H. KELLY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700